

DC Design Studio, LLC - Barrel Lifter Setup and Use Instructions

Disclaimer: Upon purchase of this mechanism, operator takes full responsibility for its use as well as the safety of the people around and or exposed to it. Failure to take precautions, attempt structural modifications, or use outside the operating guidelines is dangerous and is highly discouraged. Taking the proper precaution and using this mechanism within the scope it was designed will give you years of worry free use.

Thank you for purchasing a DC Barrel Lifter. As you can hopefully notice this mechanism has been professionally constructed using industry grade pneumatic components in conjunction with a 100% welded steel frame and heavy duty hardware.



The barrel lifter was designed to be used in conjunction with a standard steel 55 gallon barrel and can be used completely submerged in water. Please note, if using the barrel lifter in a submerged state, please keep all electronics as far away as possible. It is also recommended to oil the cylinder rod periodically with pneumatic tool oil, and store the barrel and lifter completely drained and dry.

Since the lifter ships with all pneumatic plumbing complete and tested, the first step in setting up the lifter is to secure it inside the barrel. To do so first extend the lifter downwards into its fully open resting state (cylinder should be completely extended). Next place the lifter inside the barrel so the prop mounting platform is approximately 1 inch off the bottom of the barrel. Standard barrels are 32" high, so you should have 2-3 inches of vertical play. With the lifter in place, mark where the top mounting bracket hole is. Drill a 3/8" hole and attach the lifter using a 1" long 3/8" bolt and nylon lock nut. Depending on the model of barrel lifter, you may need to remove the cylinder to gain access to the mounting bracket. With the top bracket firmly attached, make sure the lifter is level vertically, then mark and drill the second mounting hole. Attach with a second 3/8 bolt and locknut. The mechanism must be secured to the wall of the barrel for proper use as well as safety. If the mechanism is not secured down, it will attempt to lift forward causing harm to the barrel and or your prop. It also creates a potential safety hazard for your viewers.

The next step will be to mount the bulkhead fittings to allow for the airlines to run out of the base of the back of the barrel (this is not necessary, but looks a lot better than visible airlines). To do so, simply drill two holes (the same size as the threaded body on the bulkhead fittings - generally 1/2-5/8") at the base of the barrel; opposite side of where you mounted the lifter. Secure these with the enclosed body nuts and if you are using water inside the barrel, apply a coating of silicon around the exposed threads and lock nut. Apply a coating of silicon to the barrel lifter mounting bolts/nuts as well. Let the silicon dry for 48hrs before attempting to add water.

Once the silicon is dry, cut the airline that runs from the barrel lifters cylinder towards the valve with approx 6" of slack (the airlines should rest on the bottom of the barrel) and make sure they do not get snagged on the lifters bolts. Once cut, insert the two airlines into the bulkhead fittings. Connect the other side of the cut tubing to the outside bulkhead fittings. These may need to be reversed if the

barrel lifts when air is applied (in this reversed plumbing - plugging in the power supply will cause the lifter to lower, which is backwards). The lifter should remain lowered when air is applied – it should rise when electricity is applied.

With the mechanism and tubing secured you are ready to connect your air source. To do so thread your female threaded 1/4" NPT air compressor coupler to the included push-in-fitting (located on the coil of tubing attached to the "P" port on the valve); tighten (see picture on right). Once secure, carefully add air pressure (40-60 test pressure recommended). The mechanism should stay retracted and no air leaks should be present. If it does not remain lowered make sure power is not supplied, and if it is still upright switch the tubing on the bulkhead fittings. If leaks are heard, disconnect the air supply, and push the tubing further into the fittings. Re-connect your air source and re-test.



Once the mechanism is working properly it is now time to apply the prop. If you are planning on using a skeletal torso, we recommend having the spine rod welded to the top of the lifter platform (see picture on right) and 1/4" steel rods running up the spine and down the arms. These rods should also be welded to the lifter platform. This lifter does produce a significant amount of force, so attaching the prop securely is extremely important.



With the prop attached, your barrel lifter is now a complete prop and you're ready to go. Test the movement once again and increase the air pressure until you have the ideal prop speed. Adjust the flow controls for the lift and decent (tightening the thumb screw will decrease the speed, and unscrewing the screw will increase the speed); once adjusted, tighten the retaining nut to hold it in place.



In regards to displaying your prop, never use this mechanism at more than 120PSI. We recommend 80PSI which will prolong the lifter and prop life and avoid possibly hurting an innocent viewer. Also never use this mechanism in close vicinity (arms reach) of viewers. All of our pneumatic parts are rated to 120PSI, adding more will cause them to fail and begin leaking air or possibly a release of the tubing (never try and "catch" a loose/whipping pressurized airline).

Lastly, for personal safety never stand over a prop when pressure is applied. It is a potential accident that can be easily avoided.

Maintenance:

It is recommended to oil the cylinder rod periodically with pneumatic tool oil, and store the lifter/prop in a dry area. Also check the nuts and bolts to ensure they are just tight enough to not spin freely, but do move easily with a wrench. Greasing the nuts, bolts and bearings is also highly recommended.

Wiring in a controller:**Basic setup and integration of a “non-wired” manual trigger - (ie power cord or X-10 system):**

By far the easiest (and cheapest) way to activate the valve setup is to manually plug in the power supply to a household wall receptacle. As mentioned above adding 110V to the power supply will switch the valves airflow, and extend the cylinder.

Many people do not want to manually plug in a power supply for each activation, so the next easiest option is to integrate a wireless 120V appliance/light controller (available at www.dcprops.com). For about \$40 you can wirelessly turn on and off the lifter from up to 40' away. For this setup, please follow the manufacturer's instructions for setup and triggering.

Basic setup and integration of a Push Button Trigger: (available at www.dcprops.com)

If you are using a low voltage 12-24V valve and manual triggering is preferred, a push button trigger is a great solution. To connect this type of triggering device first ensure the power supply is unplugged and had not been plugged in for at least 10 minutes; the power supply holds power, and if it is or was recently plugged in, there is a possible shock hazard.

With the power supply un-energized, take the power cord (running from the power supply to the valve) and separate (spilt apart) the two wires about a foot from the power supply. As a precaution, all wiring should be kept as far from the valve and water as possible. Once split you should be left with a solid black wire and a black wire with a white stripe.

The black wire with the white stripe is the constant and you won't touch that one. The solid black wire needs to be cut and the shielding stripped about 3/8 of an inch on each cut end. With both ends stripped, now you can connect the push button's trigger.

In the case of a DC hand held trigger (WARNING - Only use hand held triggers with 12-24V DC setups, never integrate a hand held trigger into a 110V setup!), you will want to connect



the wire coming from the power supply to the red wire, and the other cut side (the wire that's running to the valve) to the black wire. We strongly recommend soldering these connections, then covering all of the bare wire with heat shrink tubing and or wrapping with electrical tape.

With those connected, you have created a normally open circuit (switch that closes the connection turning on the valve) when the button is depressed.

Basic setup and integration of a “relayed” animation controller:

These instructions are for wiring a “relayed” controller, such as an Animation Maestro (available at www.dcpops.com). The manufacturer's instructions supersede these instructions, so read and follow those instructions and precautions prior to wiring.

To connect a “common” relayed controller first ensure the power supply is un-energized and take the power cord that is running from the power supply to the valve and separate (split apart) the two wires about a foot from the power supply. As a precaution, all wiring should be kept as far from the valve and water as possible.

Once split you should be left with a solid black wire and a black wire with a white stripe. The black wire with the white stripe is the constant and you won't touch that one. The solid black wire needs to be cut and the shielding stripped about 1/4 of an inch on each cut end. With both ends stripped, now you can connect the first (common) wire coming from the power supply into the “C” (constant) terminal. Next connect the wire running to the valve on the lifter into the “N/O” (normally open) terminal.



This will complete the circuit, and the controller will “close” the circuitry loop, per your program using a PIR (passive infrared) sensor, push button trigger, or switch mat (only connect ONE trigger at a time!).

Basic setup and integration of a “powered” animation controller:

These instructions are for wiring a “powered” controller, such as a Prop 1 micro controller or Sprawling Delusions Keybanger (using a 12V-24V main power supply, with 12V-24V output).

This setup uses the power supply from the controller to power the valve, so in this setup you will want to cut the power supply off about 18” away from the power supply. Keep the power supply for future use, or for powering the controller.

With the power supply removed, separate (spilt apart) the two wires you just cut about 3” and strip approximately ¼” off each end. As a precaution, all wiring should be kept as far from the valve and water as possible. Once split you should be left with a solid black wire and a black wire with a white stripe.

The black wire with the white stripe is the constant and will need to be connected into the “V+” or “POS” terminal. The solid black wire will need to be connected into one of the “N/O” (normally open) terminals.

This will complete the circuit, and the program you enter into the controller, will control the opening and closing of the circuit (ie start and stop of the lift).

Suggested Animation controllers:

- Animation Maestro: great for triggering 1 item, extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- Animation Maestro 2: Great for triggering two items with real-time programming (ie spitter and a pneumatic solenoid valve). Available from **www.dcprops.com**.
- SD Keybanger Lite: Great for triggering up to 2 items with extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- SD Keybanger: Great for triggering up to 6 items with extremely easy setup and real-time programming. Available from **www.dcprops.com**.
- Basic Wireless Remote control: Extremely easy to use and wireless up to 40’. Available from **www.dcprops.com**.
- Prop 1 Microcontroller: Great for triggering multiple items (up to 8), requires programming knowledge. Available from **www.dcprops.com**.

Please be safe and enjoy. If you have any questions on these instructions or this props operation, please contact DC Design Studio at **support@dcprops.com**.

Thanks again for your purchase and enjoy.

DC Design Studio
P.O. Box 132
Mountain View, CA 94042
650-962-9254
www.dcprops.com